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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/677,344	10/02/2000	Balakrishnan Sridhar	327	3540

7590 09/03/2002

Ciena Corporation
Legal Department
1201 Winterson Rd
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EXAMINER
CUNNINGHAM, STEPHEN C

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 09/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/677,344	SRIDHAR ET AL.
	Examiner	Art Unit
	Stephen C. Cunningham	3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 7, 8, 10, 11, 13, 16, 19, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Shima et al.

With respect to claim 1, Shima et al teach an optical amplification device, comprising:

a first active optical fiber with a first end coupled to an optical communication path and an output second end;

a dispersion compensating element coupled to the second end portion of the first active optical fiber;

a second active optical fiber with a first end coupled to the dispersion compensating element and a second end;

a variable attenuator (VAT) connected to the second end of the second active optical fiber;

a third active optical fiber with a first end connected to the output of the variable attenuator; and

a control circuit, sensing an input optical power and outputting the attenuation control signal.

See figures 1 and 3, and column 11, lines 27-43.

With respect to claim 7, Shima et al teach an amplification device further comprising a filter with an input coupled to the second end of the second active optical fiber and an output coupled to the VAT. See figures 1 and 3, specifically filter 35 in amplification stage 3.

With respect to claim 8, Shima et al teach an amplification device wherein the filter of claim 7 is a gain-flattening filter. See, for example, column 7, lines 29-31 and 48-49.

With respect to claim 10, Shima et al teach an amplification device further comprising:

a first optical filter connected intermediate the second active optical fiber and the VAT; and

a second optical filter connected intermediate the VAT and the third active optical fiber.

See figures 1 and 3.

With respect to claim 11, Shima et al teach an amplification device wherein the filters of claim 10 are gain-flattening filters. See, for example, column 7, lines 29-31, 48-49 and column 8, lines 10-13.

With respect to claim 13, Shima et al teach that the dispersion-compensating element is a dispersion compensating fiber.

With respect to claim 16, With respect to claim 8, Shima et al teach an amplification device further comprising a first and a second pump

coupled to the first and second active optical fibers respectively and wherein the pumps both operate at 980 nm. See column 7, lines 44-49 and column 8, lines 16-28.

With respect to claim 19, Shima et al teach the method, inherent in the apparatus, of controlling comprising:

amplifying with a first amplification stage;

dispersion compensating the optical signals;

amplifying with a second amplifying stage;

optically attenuating;

amplifying with a third amplifying stage;

sensing an input optical power of signals input into the first amplification stage;

controlling the optical attenuator. See figures 1 and 3.

With respect to claim 23, Shima et al teach the inherent method further comprising filtering the signals intermediate the second and third amplification stages with a gain-flattening filter. See figures 1 and 3, specifically filter 35 in amplification stage 3 and column 7, lines 29-31 and 48-49.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 2-5, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shima et al in view of Yang et al.

With respect to claims 2 and 20, Shima et al teach a photodetector coupled to the first end of the first active optical fiber and a processing unit coupled to the photodetector, but fail to teach a memory device. Yang et al teach a memory device, storing an attenuation factor, coupled to a processing unit. Dispersion compensating elements contribute significant loss to the system and would necessarily be accounted for in an attenuation factor. It would have been obvious to modify the apparatus of Shima et al to provide a memory devise storing dispersion compensation power loss in order to provide accurate attenuation control in the apparatus.

With respect to claims 3 and 21, Shima et al teach a control circuit including:

a first photodetector coupled to the first end of the first active optical fiber;

a second photodetector coupled to an input port of the dispersion compensating element ;

a third photodetector connected to an output port of the dispersion compensating element;

and a processing unit that outputs an attenuation control signal.

Yang et al teach a memory device, storing an attenuation factor, coupled to a processing unit. Dispersion compensating elements contribute significant loss to the system and would necessarily be accounted for in an attenuation factor. It would have been obvious to modify the device of Shima et al by storing the significant static loss values in a memory device and detecting the signal power to control the attenuator accurately and dynamically.

With respect to claim 4, Shima et al teach a control circuit including:

a first photodetector coupled to the first end of the first active optical fiber;

a second photodetector coupled to the input of the variable attenuator;

a third photodetector coupled to the output of the dispersion compensating element;

a comparator inherent in the gain control;

and a processing unit, the AGC.

Yang et al teach a memory device, storing an attenuation factor, coupled to a processing unit. Dispersion compensating elements contribute significant loss to the system and would necessarily be accounted for in an attenuation factor. It would have been obvious to modify the device of Shima et al by storing the significant static loss

values in a memory device and detecting the signal power to control the attenuator accurately and dynamically.

With respect to claim 5, Shima et al teach a circuit including:

a first photodetector coupled to the first end of the first active optical fiber;

a second photodetector coupled to the input of the variable attenuator;

a third photodetector coupled to the output of the dispersion compensating element;

and a processing unit, the AGC.

Yang et al teach a memory device, storing an attenuation factor, coupled to a processing unit. Dispersion compensating elements contribute significant loss to the system and would necessarily be accounted for in an attenuation factor. It would have been obvious to modify the device of Shima et al by storing the significant static loss values in a memory device and detecting the signal power to control the attenuator accurately and dynamically.

3. Claims 6 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shima et al in view of Taylor et al.

Shima et al teach the amplification device as claimed but fail to teach an attenuator offset value storage device. Taylor et al teach a

memory circuit storing an attenuation adjustment value and a control circuit that outputs the attenuation control signal to the attenuator, see column 4, lines 30-44. It would have been obvious to modify the apparatus of Shima et al by including in the control circuitry a memory device as taught by Taylor et al.

4. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shima et al in view of Alexander et al.

Shima et al fails to teach service channel monitoring. Alexander et al teach monitoring a apparatus including a service channel transmitter coupled to an input port of an optical filter and a service channel receiver coupled to an output port of said optical filter. It would have been obvious to modify the apparatus of Shima et al by substituting the service channel monitoring device as taught by Alexander for one of the optical filters.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shima et al.

Shima et al teaches a dispersion compensating fiber which is a well known functional equivalent to the dispersion compensating Bragg grating. It would have been obvious to modify the apparatus of Shima et al by substituting a dispersion compensating Bragg grating for the dispersion

compensating fiber as a matter of design choice that produces no unexpected results.

6. Claim 1, 15, 17, 19, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker et al in view of Shima et al.

With respect to claims 1 and 19, Becker et al teach a generic 3-stage amplifier, see, for example, section 8.3.3 Multistage Amplifiers, paragraph 1. Shima teaches an optical amplifier with a dispersion compensating unit between the first and second stages and a variable attenuator between the second and third stages and control apparatus controlling the attenuator. It would have been obvious to modify the generic amplifier of Becker by: inserting a dispersion compensating element to compensate for accumulated dispersion; inserting a variable attenuator and control circuitry to control the level.

With respect to claims 15, 17, and 24, Becker et al teach that a multistage amplifier comprises a low-noise, high-gain first stage amplifier and a high power second stage amplifier. It would have been obvious to further add a low-noise, high-gain preamplifier in order to further reduce the noise accumulation in the amplifier.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al in view of Shima et al.

Taylor et al teach a communication system comprising:

a plurality of transmitters;

an optical combiner;

a plurality optical amplification devices;

an optical demultiplexer;

a plurality of optical receivers;

a plurality of received power modules;

a monitoring circuit; and

a plurality of tilt control circuits, see figure 12.

Taylor et al fail to teach the specific configuration of amplification devices. It would have been obvious to modify the apparatus of Taylor et al by substituting the specific amplifier as taught by Shima et al for the generic optical amplifiers of Taylor in order to provide a system that is wavelength independent and functions with power level in a wide dynamic range.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claim 18 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,057,959 (Taylor et al) in view of Patent No. 6,055,094 (Shima et al).

Claim 1 of U.S. Patent No. 6,057,959 teaches exactly the optical communication apparatus including:

a plurality of transmitters;

an optical combiner;

a plurality optical amplification devices;

an optical demultiplexer;

a plurality of optical receivers;

a plurality of received power modules;

a monitoring circuit; and

a plurality of tilt control circuits.

Claim 1 of U.S. Patent No. 6,057,959 fails to teach the specific configuration of amplification devices. It would have been obvious to modify the apparatus of U.S. Patent No. 6,057,959, claim 1, by substituting the specific amplifier as taught by Shima et al for the generic optical amplifiers of U.S. Patent No. 6,057,959, claim 1, in order to provide

a system that is wavelength independent and functions with power level in a wide dynamic range.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakazato

Sugaya

Sugaya et al

Koonmen et al

Tomofuji et al

Ogino et al

McNamara

Noda

Masuda et al

Yoon

Onaka et al

Kakui et al

Kinoshita

Masuda et al 'March 1998

Inoue et al

Yoshida et al.

Remarks

The arguments presented by the applicant were found to be persuasive a new search has been performed and appropriate rejections made.

Drawing objections and § 112 Rejections have been overcome through the amendments

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen C. Cunningham whose telephone number is 703-605-4275. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 703-306-4171. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

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August 12, 2002

THOMAS H. TARCZA
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TECHNOLOGY CENTER 3600